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Khalil Camille Haddad

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KHALIL CAMILLE HADDAD

Appeal 2009-007625
Application 09/803,801
Technology Center 2600

Before ALLEN R. MacDONALD, CARL W. WHITEHEAD, JR., and
BRADLEY W. BAUMEISTER, *Administrative Patent Judges*.

BAUMEISTER, *Administrative Patent Judge*.

DECISION ON APPEAL

SUMMARY

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's rejections of claims 1-8, 10-16, 18-26, and 28:

(I) Claims 1, 2, 4-6, 10-12, 14-16, and 18 stand rejected under 35 U.S.C. § 103(a) as obvious over Nedic (US 6,563,841 B1; issued May 13, 2003) in view of Haddad et al., Design of Digital Linear-Phase FIR Crossover Systems for Loudspeakers by the Method of Vector Space Projections, IEEE Transactions on Signal Processing, Vol. 47, No. 11, pp. 3058-3066, Nov. 1999 (hereinafter "Haddad I").

(II) Claims 19, 20, 22-24, and 28 stand rejected under 35 U.S.C. § 103(a) as obvious over Nedic in view of Haddad I and Gandhi (US 6,112,218; issued Aug. 29, 2000).

(III) Claims 3, 7, 8, 13, 21, 25, and 26 stand rejected under 35 U.S.C. § 103(a) as obvious over Nedic in view of Haddad I and Haddad et al., Constrained FIR Filter Design by the Method of Vector Space Projections, IEEE Transactions on Circuits and Systems—II: Analog and Digital Signal Processing, Vol. 47, No. 8, pp. 714-725, Aug. 2000 (hereinafter "Haddad II").¹

(IV) The Examiner has withdrawn additional rejections of the pending claims that were alternatively based, in part, upon Younce (US 5,521,908; issued May 28, 1996) (Ans. 2-3).

Appellant states that claims 1-8, 10-16, 18-26, and 28 are pending, and that they "appeal the non-final rejection of claims 1-8, 10-16, 18-26, and 28 in the Office Action" (App. Br. 1) but later states that only "[c]laims 1, 7,

¹ The Examiner and Appellant alternatively refer to this reference as "Khalil" (*see, e.g.*, Ans. 2; App. Br. 2).

8, 10, 11, 18, 19, 25, 26, and 28 are being appealed” (App. Br. 2; Reply Br. 2).²

We affirm.

STATEMENT OF THE CASE

Appellant describes the present invention as follows:

Shortening impulse response filters (SIRF) are disclosed that satisfy constraints in both the time and frequency domains. In addition, methods and apparatus are disclosed for determining the coefficient values for SIRF filters. The disclosed SIRF filters shorten the channel impulse response in the time domain while also providing a frequency response that does not attenuate or amplify the received signal. One or more sets define constraints that the SIRF filter must satisfy in the time domain, and one or more sets define constraints that the SIRF filter must satisfy in the frequency domain. By varying the sets utilized to define the time and frequency domain constraints, SIRF filters having a linear or non-linear phase response may be obtained. The intersection of the various sets defines the coefficients for the SIRF filters. Vector space projection methods are utilized to determine the intersection set.

(Abstract).

² Appellant’s above statement appears to waive the appeal of claims 2-6, 12-16, and 20-24, or at least indicates that Appellant does not contend that these claims are separately patentable from specifically argued claims.

Independent claim 1 is representative:³

1. A method for determining coefficient values for a shortening impulse response filter (SIRF), said method comprising the steps of:

establishing at least one set of defining constraints that said SIRF filter must satisfy in a time domain;

establishing at least one set of defining constraints that said SIRF filter must satisfy in a frequency domain; and

determining an intersecting set of said at least one set of defining constraints that said SIRF filter must satisfy in the time domain and said at least one set of defining constraints that said SIRF filter must satisfy in the frequency domain by employing vector space projection methods.

CONTENTIONS AND ANALYSIS

Claims 1, 11, and 19

The Examiner finds that Nedic discloses all of the limitations of claim 1 except for “a method of determining the values of the [SIRF’s] coefficients via vector space projection methods (VSPM)” (Ans. 4). The Examiner also finds that Haddad I teaches a method of designing a finite impulse response (FIR) filter (*id.*) and “a method to solve a mathematical problem encompassing multiple constraints by vector space projection” (Ans. 5). The Examiner reasons that “[b]ecause an SIRF filter is a particular type of FIR filter, one skilled in the art would be [sic: have been] motivated to use

³ Appellant argues independent claims 1 and 11 together as a group. *See* Twice Corrected Appeal Brief (App. Br.) 5-6, filed August 3, 2007. Appellant nominally argues independent claim 19 separately from claims 1 and 11 (App. Br. 7-8), but the arguments presented for claim 19 are substantially the same as those presented for claims 1 and 11. We, therefore, treat claims 1, 11, and 19 as a single claim grouping, and we select claim 1 as representative of this group. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Haddad's exemplary coefficient determining method for SIRF filters (such as that of Nedic) as well as [for] FIR filters" (*id.*).

Appellant first contends that Nedic does not disclose or suggest "the concept of sets, intersection of sets and projections, and the modeling of constraints with mathematical sets . . . [or] determining an intersecting set of . . . defining constraints that a SIRF filter must satisfy [in time and frequency domains] by employing vector space projection methods" (App. Br. 5-6) (emphasis omitted). As noted above, this assertion is undisputed by the Examiner. The Examiner instead relies upon Haddad I for teaching this portion of the claim language (*see* Ans. 4-5).

Appellant next contends that no disclosure or suggestion exists in the references to combine the methods disclosed in Haddad I within Nedic's SIRF filter (App. Br. 6). Appellant concludes that, as such, the art of record fails to disclose or suggest the language of claims 1 (*id.*). The Examiner has explained, though, that the motivation to combine arises from the well-known fact that a SIRF is a specific type of FIR (Ans. 5-6). Appellant does not dispute (1) that a SIRF is a specific type of FIR; (2) that this fact was well known at the time of the invention; or (3) that this well-known fact would provide motivation to combine the teachings of Nedic and Haddad I (*see* App. Br. 5-6).

In the subsequent Reply Brief, Appellant additionally contends that the application of Haddad I's VSPM technique for filter design was not trivial, was not taught by the cited prior art, and would not have been obvious (Reply Br. 4-5). This argument is unpersuasive because the fact that the creation and selection of the proper constraints may not have been trivial, does not address the question of whether one of ordinary skill in the

art, when in possession of Nedic and Haddad I, would have been reasonably able to derive the proper constraints or coefficients that would have been required for the SIRF filter.

Moreover, even if we were to interpret this argument from the Reply Brief as alternatively meaning that due to the nature and difficulty of determining the proper constraints for an SIRF filter design, the teachings of Nedic and Haddad I would not be sufficient to have enabled one of ordinary skill to have selected the proper SIRF coefficients, this argument still would not be persuasive. “[I]t is inappropriate for appellants to discuss in their reply brief matters not raised in . . . the principal brief[]. Reply briefs are to be used to reply to matter[s] raised in the brief of the appellee.” *Kaufman Company, Inc. v. Lantech, Inc.*, 807 F.2d 970, 973 n. (Fed. Cir. 1986). “Considering an argument advanced for the first time in a reply brief . . . is not only unfair to an appellee, but also entails the risk of an improvident or ill-advised opinion on the legal issues tendered.” *McBride v. Merrell Dow and Pharms., Inc.*, 800 F.2d 1208, 1211 (D.C. Cir. 1986) (internal citations omitted).

There are cogent reasons for not permitting an appellant to raise issues or arguments in a reply brief. Among them are the unfairness to the appellee who does not have an opportunity to respond and the added burden on the court that a contrary practice would entail. As the Tenth Circuit put it, permitting an appellant to raise new arguments in a reply brief “would be unfair to the court itself, which without the benefit of a response from appellee to an appellant's late-blooming argument, would run the risk ‘of an improvident or ill-advised opinion, given [the court's] dependence . . . on the adversarial process for sharpening the issues for decision.’” *Headrick [v. Rockwell Int’l Corp.]*, 24 F.3d [1272,] 1278 [(10th Cir. 1994)], (quoting *Herbert v. Nat’l Academy of Sciences*, 974 F.2d 192,

196 (D.C. Cir. 1992)).

Carbino v. West, 168 F.3d 32, 34-35 (Fed. Cir. 1999).

For the foregoing reasons, Appellant has not persuaded us of error in the Examiner's obviousness rejection of representative claim 1.

Accordingly, we will sustain the Examiner's rejection of that claim, as well as of claims 11 and 19, which are grouped with claim 1.⁴

Claims 7, 8, 25, and 26

Claims 7, 8, 25, and 26 stand rejected under 35 U.S.C. § 103(a) as obvious over Nedic in view of Haddad I and Haddad II (*see* Ans. 9-11). The Examiner further relies on Haddad II for teaching a VSPM method wherein a filter is designed having the design constraints that are additionally set forth in these claims (*id.*). The Examiner sets forth motivation for why it would have been obvious to incorporate these design constraints within a SIRF filter made according to Nedic and Haddad I (*id.*).

Appellant does not dispute that Haddad II teaches the constraints set forth in the bodies of these four dependent claims (App. Br. 10-13). Appellant solely argues that Haddad II does not disclose or suggest that the disclosed sets of defining constraints be used in a *SIRF* filter (e.g., App. Br. 10). That is, Appellant essentially argues that Haddad II does not anticipate the claims. Based on this observation, Appellant contends that none of the cited prior art, either alone or in combination, discloses or suggests the claims' respective limitations.

⁴ We note that claim 11 recites "A shortening impulse response filter (SIRF), comprising: a set of finite impulse response (FIR) coefficients [that satisfy various constraints]." That is, the body of claim 11 merely sets forth a plurality of numbers *per se*. Upon further prosecution, the Examiner should consider whether claim 11 is directed to patent-eligible subject matter under 35 U.S.C. § 101.

This argument is not persuasive. The fact that none of the cited references anticipates any of these claims under 35 U.S.C. § 102 is not dispositive of whether the combination of references renders these claims obvious under 35 U.S.C. § 103. *See In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (noting that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references).

Claims 10 and 18

Claims 10 and 18 also stand rejected under 35 U.S.C. § 103(a) as obvious over Nedic in view of Haddad I (*see* Ans. 6-7). Although Appellant asserts that these claims are being appealed (App. Br. 2; Reply Br. 2), Appellant has not presented any arguments for these claims in either of the Briefs. We therefore affirm the obviousness rejection of claims 10 and 18.

Claim 28

Claim 28 stands rejected under 35 U.S.C. § 103(a) as obvious over Nedic in view of Haddad I and Gandhi (*see* Ans. 7-9). Although Appellant asserts that claim 28 is being appealed (App. Br. 2; Reply Br. 2), Appellant has not presented any arguments for this claim in either of the Briefs. We therefore affirm the obviousness rejection of claim 28.

DECISION

We sustain the Examiner's rejections with respect to all of the claims on appeal. Therefore, the Examiner's decision rejecting claims 1-8, 10-16, 18-26, and 28 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2010).

Appeal 2009-007625
Application 09/803,801

AFFIRMED

gvw